Energy Transition Outlook 2019

Wat betekent de transitie voor de infrastructuur?
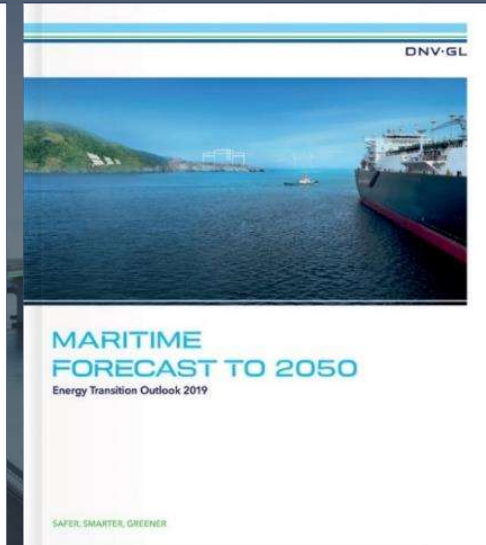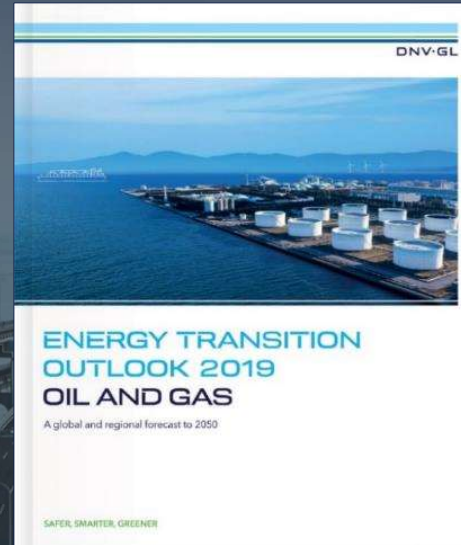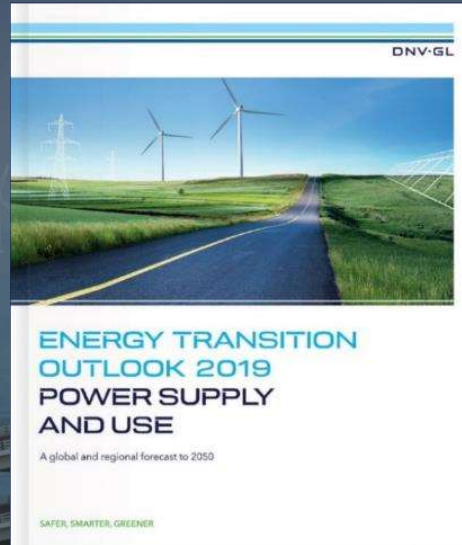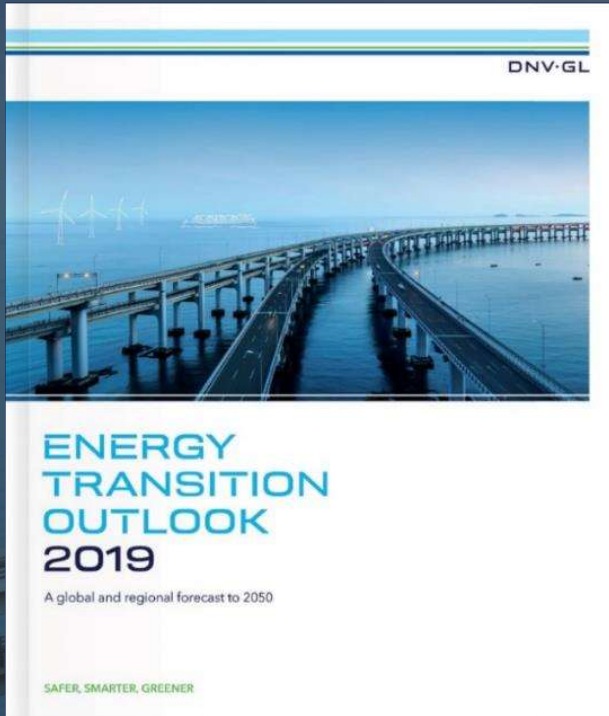
Jillis Raadschelders
01 October 2019

Industry consolidation – strong brands

2,500 energy experts help customers throughout the electrical power industry realize efficient, reliable and clean energy for today and the future.

1867 GL

1864 DNV

1927 KEMA

1984 GARRAD HASSAN

2009 GL Garrad Hassan

2012 KEMA DNV

2013 DNV·GL / KEMA Laboratories

2015 PV EVOLUTION LABS

2016 gothia power

2016 GreenPowerMonitor

OUR PURPOSE:
TO SAFEGUARD LIFE, PROPERTY AND THE ENVIRONMENT

OUR VISION:
GLOBAL IMPACT FOR A SAFE AND SUSTAINABLE FUTURE

A SUITE OF REPORTS

NOT MERELY AN UPDATE

New electricity market model with prices at hourly intervals

Enhanced modelling of electrification of the road transportation sector

DNV·GL

Key assumptions

Population

9.4 bn

Projected global population in 2050 of 9.4 billion

- 3.5% lower than the UN median population forecast at 9.8 billion

Economic growth

130%

Global economy will grow by 130% to 2050

- Reaching USD 300 trillion in 2050
- CAGR 2.5%/year

Learning Curves

16-19%

Average % cost reduction per doubling of installed capacity

- Solar 18%
- Wind 16%
- Batteries 19%

Policy

<60 USD/t

Carbon prices will be regional and in 2050 range between 25-60/t (USD 2017)

Other policy examples:
- Air pollution measures
- RE power support
- ZEV support
- Maritime environmental regulations

DNV·GL

2019 HIGHLIGHTS

Rapid energy transition – but not fast enough

Existing technology can deliver the 1.5°C target

Global energy use peaks by 2030 due to energy efficiency

An affordable transition smaller share of GDP spent on energy

DNV·GL

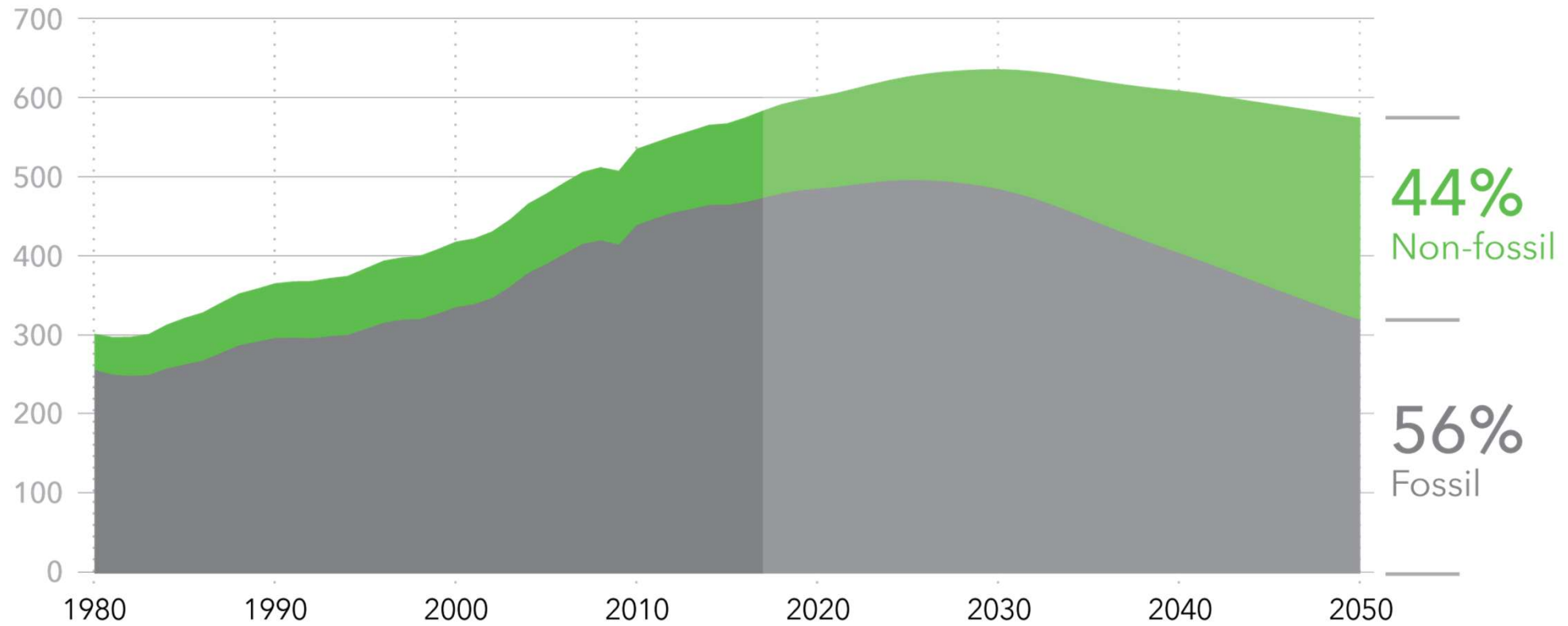# ACCESS TO ALL OUR FORECAST DATA

eto.dnvgl.com/forecast-data
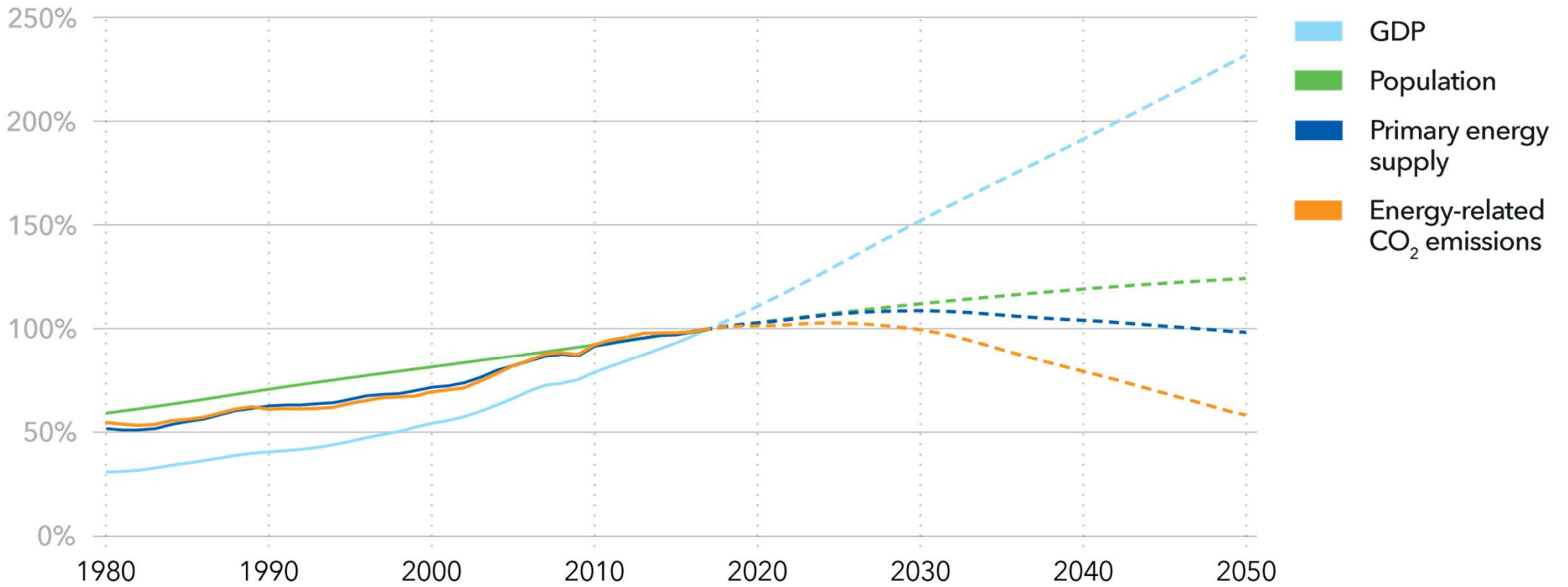
ONE FORECAST

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Close to equal split

Units: EJ/yr

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Decoupling of GDP

Units: Percentages of 2017 levels

DNV·GL

Energy demand will peak

Units: **EJ/yr**

2033

DNV·GL
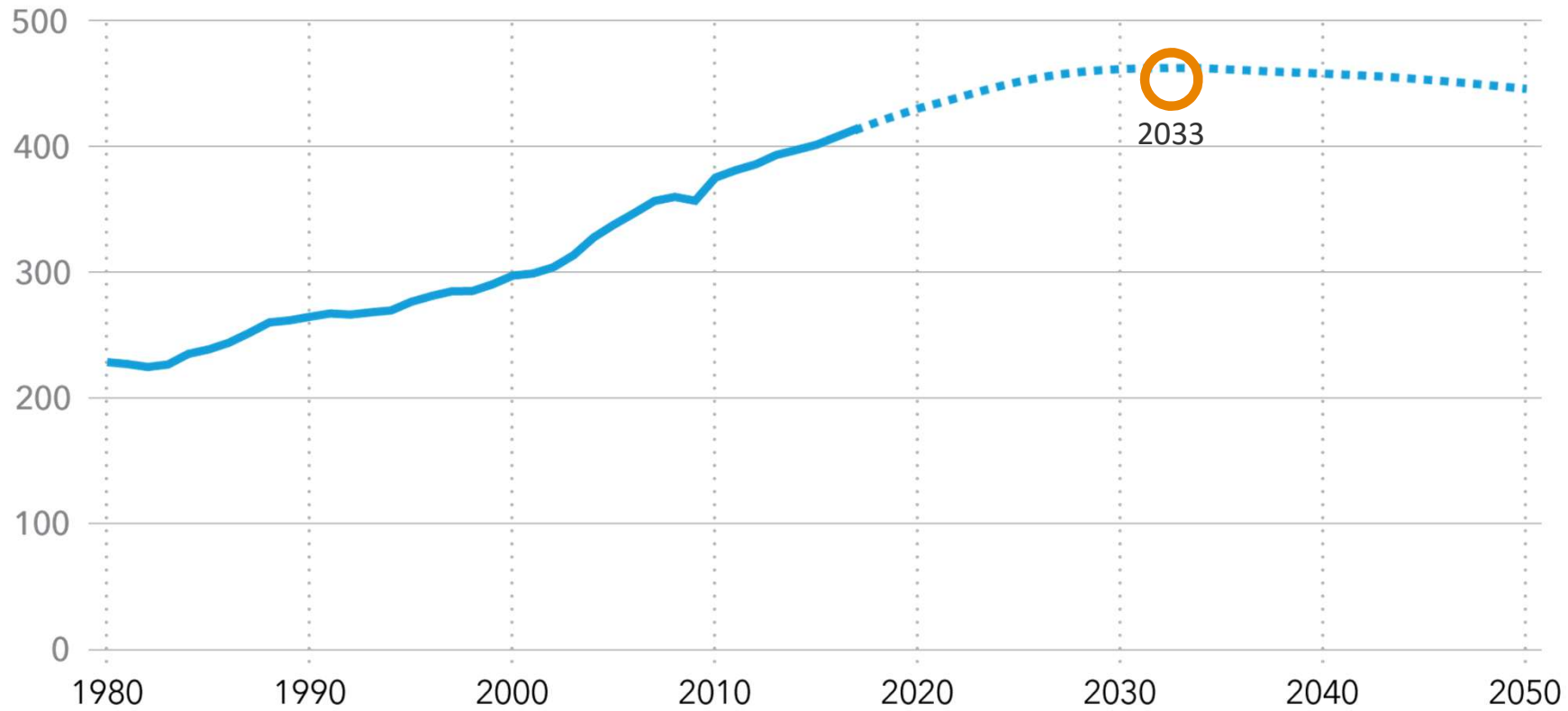
Global electric vehicle sales

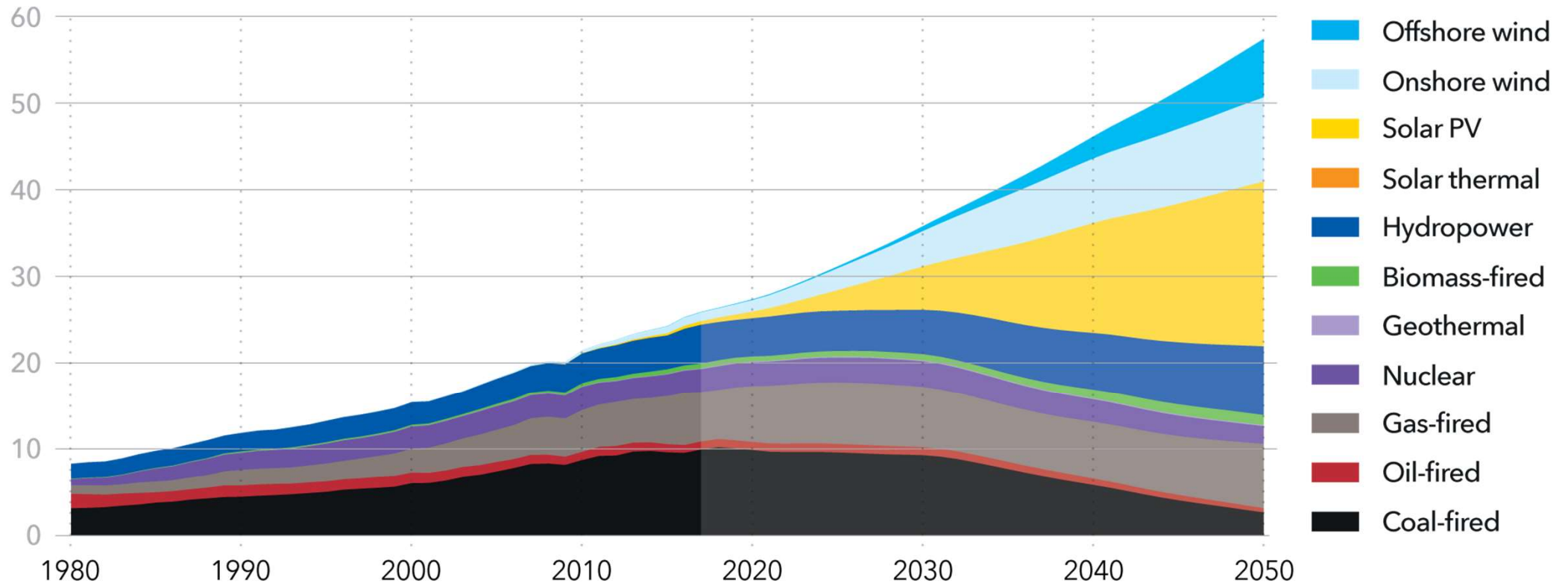Units: **Percentages**

DNV·GL
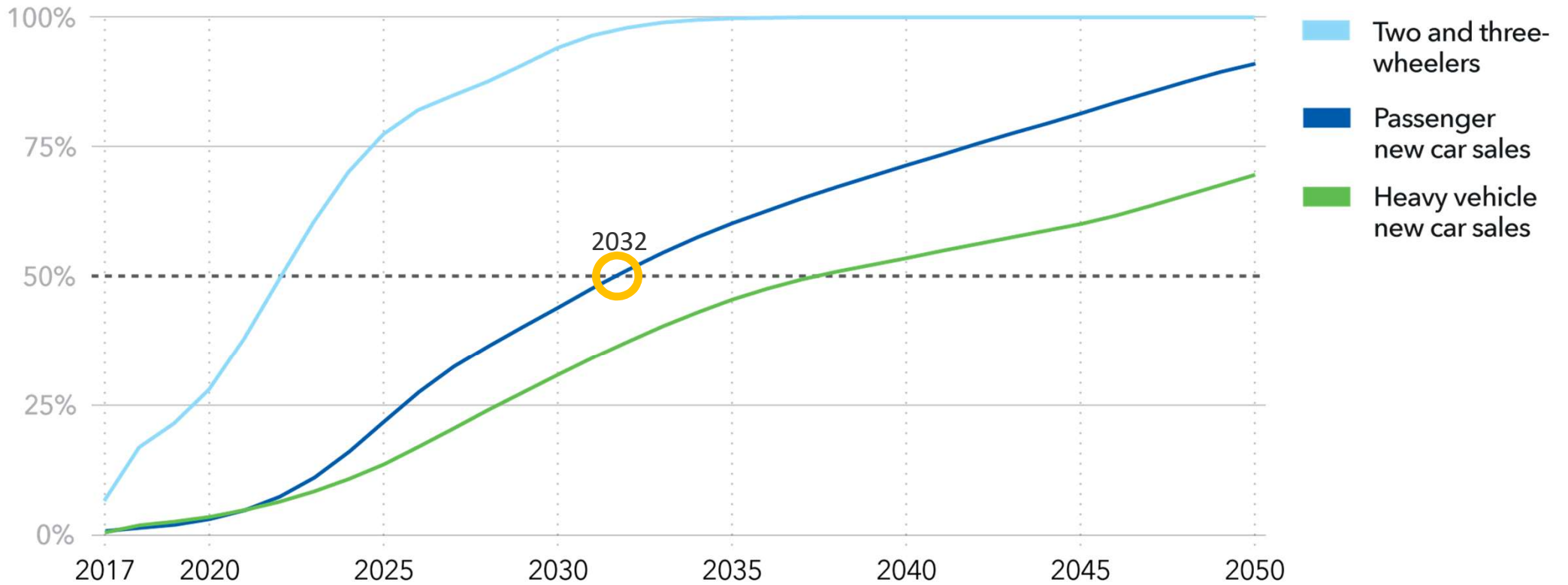
World electricity demand by sector

Units: PWh/yr
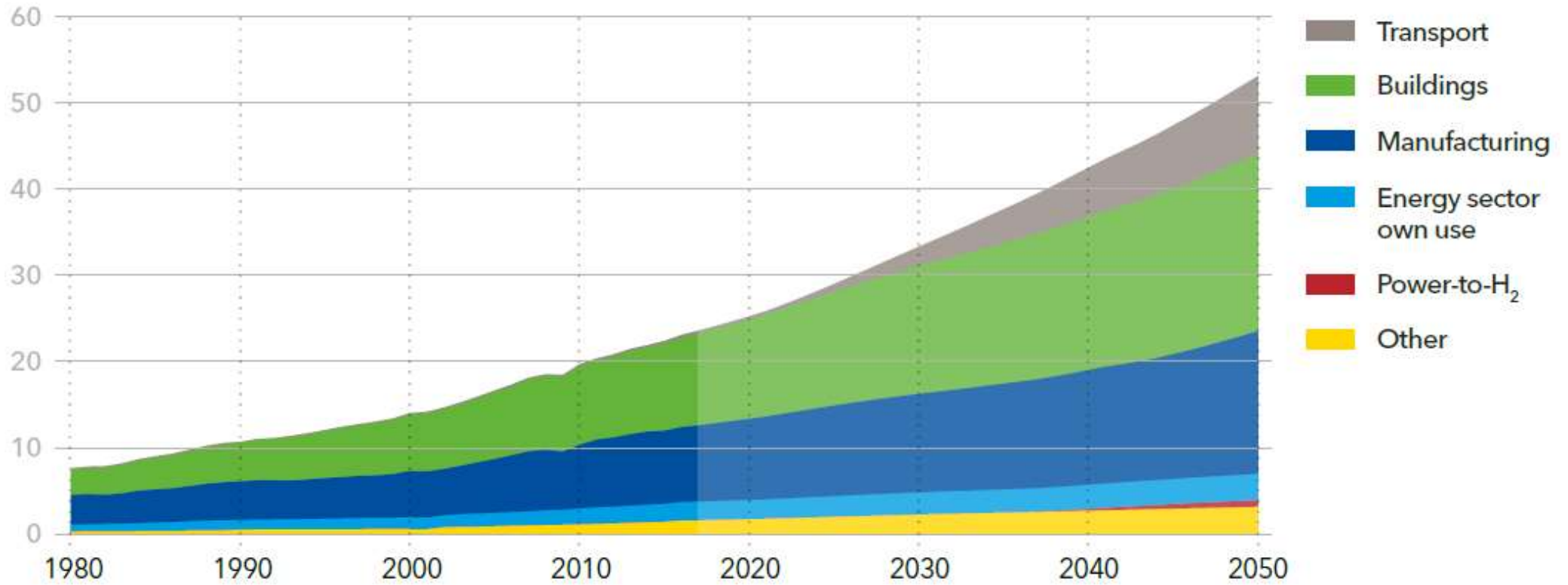
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World electricity generation

Units: PWh/yr

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World electricity generation

Units: **PWh/yr**

63% Wind and solar PV

37% Other

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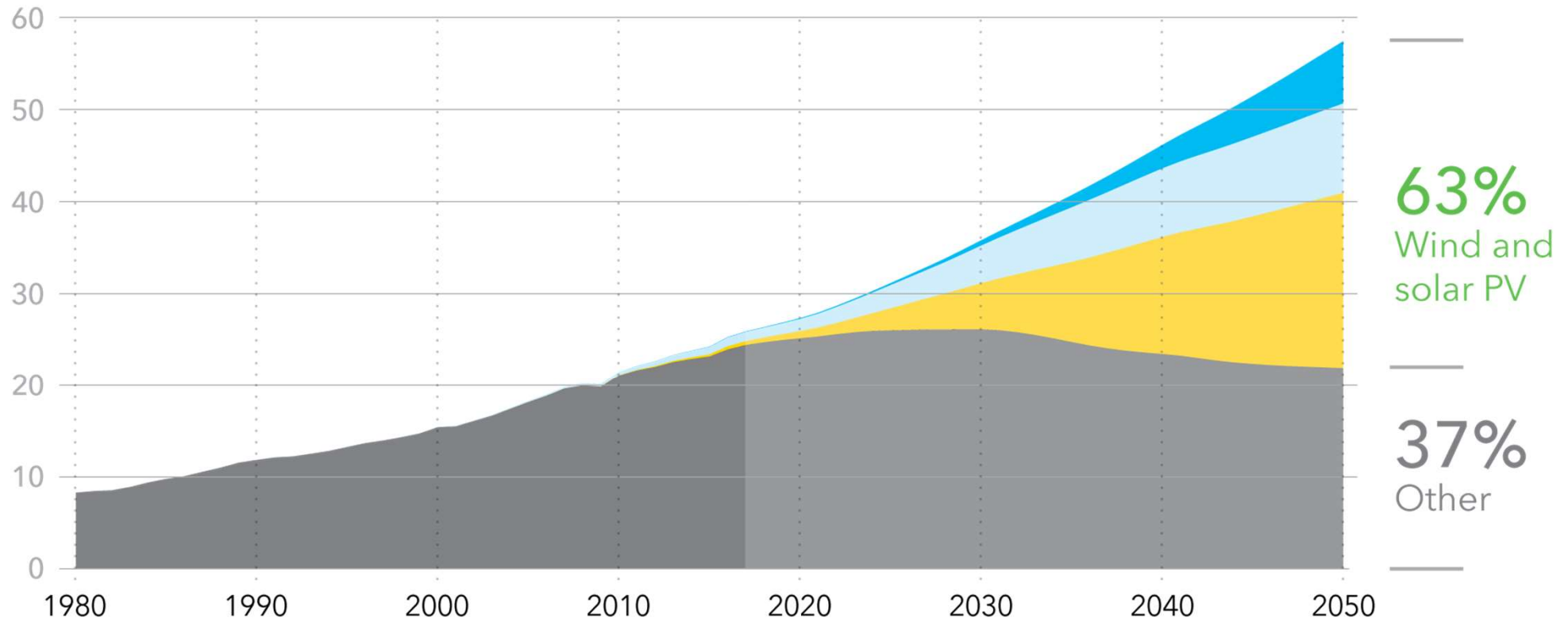
Electricity generation from solar and wind

Units: PWh/yr

DNV·GL
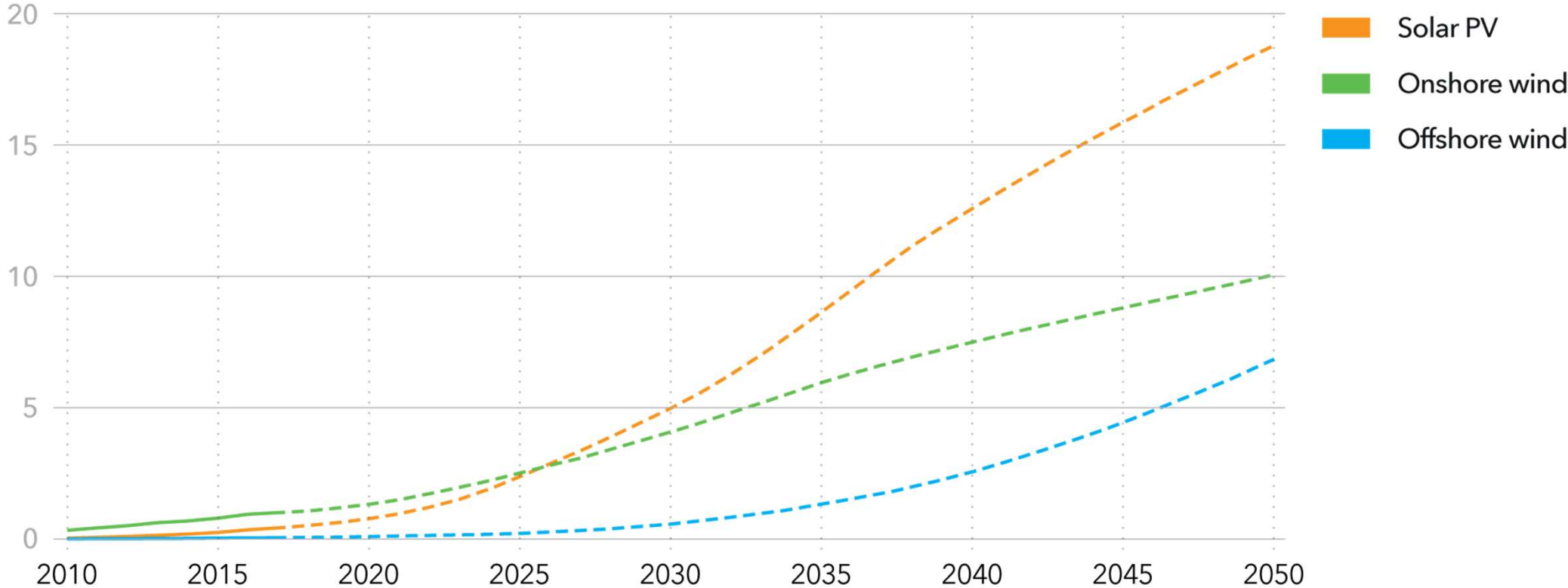
Tremendous growth due to high cost learning curve rates

19%

18%

16%

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Solar PV capacity to increase from 390 GW in 2017 to 11.6 TW in 2050

Installed solar PV capacity by region

Units: TW

Legend:
- North America (NAM)
- Latin America (LAM)
- Europe (EUR)
- Sub-Saharan Africa (SSA)
- Middle East and North Africa (MEA)
- North East Eurasia (NEE)
- Greater China (CHN)
- Indian Subcontinent (IND)
- South East Asia (SEA)
- OECD Pacific (OPA)